

CURRICULUM VITAE

WILLIAM IAN DUNCOMBE RAE

Version:
Thursday, 24 October 2013

Signed: _____

Date: 24 October 2013

Curriculum Vitae

INTRODUCTION

PERSONAL INFORMATION

<i>First Name</i>	William
<i>Middle Names</i>	Ian Duncombe
<i>Surname</i>	Rae
<i>Title</i>	Associate Professor
<i>Prof Designations</i>	Doctor of Philosophy
<i>Date of Birth</i>	1 May 1959
<i>Nationality</i>	South African
<i>Religion</i>	Christian (Member of REACH South Africa)
<i>ID Number</i>	590501 5061 083
<i>Driver's Licence</i>	30040008F01B (Valid to 11/12/2017)
<i>Married</i>	Kerry Elizabeth (nee: Uebel), on 7 December 1985
<i>Children</i>	Son (Stephen Duncombe, 17 August 1989) Daughter (Heather Elizabeth, 26 August 1992)

CONTACT DETAILS

Work Contact Details

<i>Employed by</i>	Universitas Hospital and University of the Free State
<i>Department</i>	Department of Medical Physics (G68), Room 443/4
<i>Building</i>	Faculty of Health Sciences
<i>Street</i>	UFS Campus
<i>City</i>	Bloemfontein
<i>Province</i>	Free State
<i>Country</i>	South Africa
<i>Post Code</i>	9301
<i>Telephone</i>	+27 51 405 3156
<i>e-mail</i>	raewid@ufs.ac.za

Home Contact Details

<i>Address Line 1</i>	27 Vilonel Street
<i>Address Line 2</i>	Dan Pienaar
<i>City</i>	Bloemfontein
<i>Province</i>	Free State
<i>Country</i>	South Africa
<i>Post Code</i>	9301
<i>Cell phone</i>	+27-84-548 5246
<i>Home phone</i>	+27-51-436 4984
<i>e-mail</i>	williamrae@mweb.co.za

JOB DESCRIPTION**Job Details**

<i>Job Title (1)</i>	Head of Department: Medical Physics
<i>Employed by (1)</i>	Universitas Hospital University of the Free State
<i>Department (1)</i>	Medical Physics
<i>Started on (1)</i>	1 Jul 2011 (Acting from 1 April 2010 to 30 June 2011)
<i>Responsible for (1)</i>	Active Leadership as Head in all aspects of the Departmental function. Academic support and Administrative Service Delivery, Universitas Radiology Department. Assist with In-Service Training of Medical Physics Interns supervising mini-research projects. Stimulation and support of all research activities in Medical Physics. Supervise or Co-Supervise PhD students and Masters Students. Develop Interdisciplinary and Interdepartmental research collaboration. Participation in various research project planning meetings (NTEMBI, CUT, etc). Teach the following courses: 1st year Critical Thinking Skills MBBCh, Physics of Anaesthesiology to Registrars, Short Course in the Physics of Radiology, Ultrasound in Trans-Oesophageal Echocardiology, MRI physics to Radiology Registrars. Maintain contact with International and National Professional Organisations in various roles to contribute and give feedback to local Medical Physics Departments and Organisations.
<i>Reporting to (1)</i>	Medical Manager, Universitas Hospital Head of School of Medicine, UFS.
<i>Job Title (2)</i>	Member of the Committee of Medical Sciences
<i>Employed by (2)</i>	HPCSA
<i>Department (2)</i>	Medical and Dental Board
<i>Started on (2)</i>	Feb 2011 (Quarterly one day meetings)
<i>Responsible for (2)</i>	Participation in Board Activities
<i>Reporting to (2)</i>	Chairperson of the Committee of Medical Sciences

EDUCATION HISTORY

Institution Schooling at Victoria Park High School, P.E.
Attended From 1972
Attended Until 1976
Course Name **Cape Senior Certificate**
Comment Obtained with Matriculation Exemption

Institution Rhodes University
Attended From 1977
Attended Until 1979
Course Name **B.Sc.**
Comment Graduating 1980 with Maths and Physics as major subjects

Institution University of Witwatersrand
Attended From 1980
Attended Until 1984
Course Name **M.B.B.Ch.**
Comment

Institution UCT
Attended From 1986
Attended Until 1987
Course Name **M.Sc.(Med.) Med. Phys.**
Comment Obtained degree with distinction

Institution University of the Free State
Attended From 1993
Attended Until 1995
Course Name **Ph.D.**
Comment Student No.: 1993364353
 Graduated with degree in March 1996, after part time studies.
 “Development of a Ferrous Sulphate Gel MRI Dosimeter System
 for Determination of Radiation Absorbed Dose Distribution”

PROFESSIONAL BODY REGISTRATIONS

Registration HPCSA as Medical Practitioner
Registration No MP0282650
Date 1986 – 1987 and 1997 – present

Registration HPCSA as Medical Physicist
Registration No PH0000710
Date 1987 – present

AWARDS

1976 R A Viljoen Prize for Mathematics.
1976 Passed Cape Senior Certificate with University Exemption
1977 Awarded Alec Brooke Bursary
1978 A Trevor Williams Prize for Physics.
1979 Alexander Ogg Prize for Physics.
1979 F R Furter Scholarship, (declined).
1980 Degree BSc awarded with distinction in Physics.
1986 MRC Post Internship Scholarship, Department of Medical Physics, University of Cape Town.
1994 Awarded Public Service Bursary, for PhD at Medical Physics Department, UFS, Bloemfontein.
2008 NRF Travel Grant (3 yrs, until end 2010 @ R100 000/yr) for collaboration with Researchers in Romania.

PAST WORK EXPERIENCE

<i>Job Title 1</i>	Student Assistant
<i>Employed By</i>	Wits University
<i>Department</i>	Medical Physics
<i>Responsibilities</i>	Employed for elective study period
<i>Date</i>	Six weeks in 1981
<i>Comment</i>	First exposure to Medical Physics and LINAC acceptance
<i>Job Title 2</i>	Student Assistant
<i>Employed By</i>	Wits University
<i>Department</i>	Medical Physics
<i>Responsibilities</i>	Employed for elective study period
<i>Date</i>	Six weeks Elective Period in 1983
<i>Comment</i>	Introduced to Radiation protection measurements
<i>Job Title 3</i>	Medical Intern
<i>Employed By</i>	Livingstone Hospital, PE.
<i>Department</i>	Medicine, Surgery and Obstetrics and Gynaecology
<i>Responsibilities</i>	Internship Training as Medical Practitioner
<i>Date</i>	1 Jan 1985 – 31 Dec 1985
<i>Comment</i>	Completed Internship and registered as Medical Practitioner
<i>Job Title 4</i>	Medical Physicist
<i>Employed By</i>	Provincial Hospital, PE
<i>Department</i>	Medical Physics
<i>Responsibilities</i>	Working in all disciplines of Medical Physics
<i>Date</i>	1 Jan 1988 – 30 Mar 1997
<i>Comment</i>	Worked independently in all fields of Medical Physics, achieving good practical service experience
<i>Job Title 5</i>	National Serviceman in SAMS
<i>Employed By</i>	Provincial Hospital, PE
<i>Department</i>	Medical Physics
<i>Responsibilities</i>	Working in all disciplines of Medical Physics
<i>Date</i>	3 Aug 1988 – 30 Jun 1990 (Concurrent with 20 mnths Job 4)
<i>Comment</i>	Seconded to own work to complete time of Service
<i>Job Title 6</i>	Control Medical Physicist
<i>Employed By</i>	Addington Hospital, Durban.
<i>Department</i>	Medical Physics
<i>Responsibilities</i>	Medical Physics of Nuclear Medicine and Radiology Teaching Radiological Physics to Registrars Supervising Nuclear Medicine Services
<i>Date</i>	1 Apr 1997 – 31 Dec 2006
<i>Comment</i>	Developed nuclear medicine physics skills to high level
<i>Job Title 7</i>	Examiner
<i>Employed by</i>	CMSA
<i>Department</i>	Radiology Physics and Anaesthesiology Physics
<i>Responsibilities</i>	Participation in the examination and assessment of CMSA part 1 Candidates
<i>Date</i>	1998 and 2010 respectively (1 examination session per year on average)
<i>Comment</i>	Reporting to CMSA Exam Convenors
<i>Job Title 8</i>	Regional Expert
<i>Employed By</i>	IAEA Technical Cooperation Projects on six occasions

<i>Department</i>	RAF/6/022-05	RAF/4/017 9002 01	MAR/6/008- /01/01	RAF/6/032-005
<i>Responsibilities</i>	Namibia Audit on Nuclear Medicine Department	Ethiopia Workshop on conformation of NM protocols	Mauritius Upgrading of techniques in Mammo and Brachy	South Africa Practical training in Quantitative imaging
<i>Date</i>	11/1999	05/2003	09/2007	04/2008
<i>Comment</i>	Indicates recognition as a regional expert in Africa			

Job Title 8 continued

Employed By
Department

*Responsibilities**Date**Comment***Regional Expert**

IAEA Technical Cooperation Projects on six occasions

RAF/9/044-9004 01 RAF/9/044-9004 05

South Africa Digital Radiology QC for dose reduction

Namibia Optimisation in Room Protocols in Radiology

04/2013 05/2013

Indicates recognition as a regional expert in Africa

Job Title 9

Employed By
Department

*Responsibilities**Date**Comment***Control Medical Physicist**

Universitas Hospital and the University of the Free State Medical Physics

Academic support and Administrative Service Delivery, Universitas Radiology Department.

Assist with In-Service Training of Medical Physics Interns supervising mini-research projects.

Stimulation and support of all research activities in Medical Physics.

Supervise or Co-Supervise six current PhD students and two Masters Students from 5 different departments around the country.

Participation in various research project planning meetings (NTEMBI, CUT, etc).

Teach the following courses: 1st year Critical Thinking Skills MBBCh,

Physics of Anaesthesiology to Registrars,

Short Course in the Physics of Radiology,

Ultrasound in Trans-Oesophageal Echocardiology,

MRI physics to Radiology Registrars.

Maintain contact with International and National Professional Organisations in various roles to contribute and give feedback to local Medical Physics Departments and Organisations.

1 Jan 2007 – 30 Jun 2011

Acted as HoD for last 15 months of the above period

Job Title 10

Employed by
Department

*Responsibilities**Date***Technical Assessor**

South African National Accreditation Service

Inspection Bodies

Assessment of Technical Signatories for Radiological Inspection Bodies

14 Feb 2011 (Approximately one day per Month) to 31 May 2013

PAST ACADEMIC APPOINTMENTS

<i>Job Title 1</i>	External Examiner
<i>Employed By</i>	University of Cape Town
<i>Department</i>	Medical Physics
<i>Responsibilities</i>	External examiner in Medical Physics, B.Sc. (hons.)
<i>Date</i>	1988 – 1997
<i>Job Title 2</i>	Temporary Part Time lecturer
<i>Employed By</i>	University of Port Elizabeth
<i>Department</i>	Nursing Sciences
<i>Responsibilities</i>	Part Time lecturer for Nursing Sciences, B.Cur.
<i>Date</i>	1988 – 1997
<i>Job Title 4</i>	External examiner
<i>Employed By</i>	University of the Free State
<i>Department</i>	Medical Physics
<i>Responsibilities</i>	External examiner for B.Med.Sc. Hons., and M.Med.Sc.
<i>Date</i>	1997 – 2006
<i>Job Title 5</i>	External examiner
<i>Employed By</i>	Durban Institute of Technology
<i>Department</i>	Radiography
<i>Responsibilities</i>	External examiner for Ultrasound, and Various dissertations
<i>Date</i>	1999 – 2002
<i>Job Title 6</i>	Occasional Part time lecturer
<i>Employed By</i>	Durban Institute of Technology
<i>Department</i>	Radiography
<i>Responsibilities</i>	Occasional Part time lecturer
<i>Date</i>	1999 – 2002
<i>Job Title 8</i>	Supervisor / Co-supervisor
<i>Employed By</i>	University of Kwa Zulu-Natal
<i>Department</i>	School of Pure and Applied Physics
<i>Responsibilities</i>	Provided image processing research projects for three PhD students
<i>Date</i>	Supervisor / Co-supervisor of the three PhD students 2003 – 2006
<i>Job Title 9</i>	Appointed as Honorary Research Fellow
<i>Employed By</i>	University of Kwa Zulu-Natal
<i>Department</i>	School of Pure and Applied Physics
<i>Responsibilities</i>	Research collaboration
<i>Date</i>	2004 – 2006
<i>Job Title 10</i>	Co-supervisor
<i>Employed By</i>	Durban University of Technology
<i>Department</i>	Department of Radiography
<i>Responsibilities</i>	On site co-supervision of one D.Tech student, employed at IALCH. Other supervisors from DUT and Canada
<i>Date</i>	2003 – 2006

PROFESSIONAL ASSOCIATION MEMBERSHIPS

National Organisations

<i>Professional Body 1</i>	Member of the SA Association of Physicists in Medicine and Biology (SAAPMB)
<i>Date</i>	1987 – 2012
<i>Professional Body 2</i>	Member of the Professional Committee of SA Medical Physics Society (SAMPS)
<i>Date</i>	1991 – 1993
<i>Professional Body 3</i>	Member of the Council of the SAAPMB
<i>Date</i>	1994 – 1998 and 2002 – 2008
<i>Professional Body 4</i>	Vice President of the SAAPMB
<i>Date</i>	1996 – 1997 and 2003 – 2004
<i>Professional Body 5</i>	President of the SAAPMB
<i>Date</i>	1997 – 1998 (one term) and 2004 – 2007 (two terms)
<i>Professional Body 6</i>	Chairman of the Organising Committee for the 40 th SAAPMB Congress, Durban.
<i>Date</i>	1999 – 2000
<i>Professional Body 7</i>	Member of SA Institute of Physics
<i>Date</i>	1998 – 2012
<i>Professional Body 8</i>	HPCSA representative for SA Medical Physics Society (SAMPS)
<i>Date</i>	2011 – 2015

International Organisations

<i>Professional Body 1</i>	Representative of SAMPS at the International Organisation of Medical Physics (IOMP) World Congresses
<i>Date</i>	2003, 2006, 2009, 2012
<i>Professional Body 2</i>	Education and Training Committee of IOMP
<i>Date</i>	2006 – 2015
<i>Professional Body 3</i>	Nominations Committee of IOMP
<i>Date</i>	2008 – 2009
<i>Professional Body 4</i>	Professional Relations Committee of IOMP
<i>Date</i>	2009 – 2015
<i>Professional Body 5</i>	Member of the International Society of Magnetic Resonance in Medicine
<i>Date</i>	1998 - 2012

PATENTS FILED

<i>1. Title</i>	Mammographic Tomography Test Phantom
<i>Inventors</i>	Jonson, B., Rae, W.I.D.
<i>Reference</i>	PA156398/PCT
<i>Date</i>	6 September 2013
<i>Application #</i>	PCT/IB2013/058344

PUBLICATIONS

1. *Title* Chelator effect on Ion Diffusion in Ferrous Sulfate Doped Gelatin Gel Dosimeters as Analyzed by MRI
Author Rae, W.I.D., Willemse, C.A., Lötter, M.G., Engelbrecht, J.S., Swarts, J.C.
Reference Med. Phys.
Date 1996
Vol., Page 23 (1) 15-24
2. *Title* Diffusion-Weighted Magnetic Resonance Imaging of Spinal Infection and Malignancy
Author Pui, M.H., Mitha, A., Rae, W.I.D., Corr, P.
Reference Journal of Neuroimaging
Date 2005
Vol., Page 15 (2) 164-170
3. *Title* ^{99m}Tc-MIBI Imaging of Cutaneous AIDS-associated Kaposi's Sarcoma
Author Peer, F.I., Pui, M.H., Mosam, A., Rae, W.I.D.
Reference International Journal of Dermatology
Date 2007
Vol., Page 46 (1) 166-171
4. *Title* Identification of the Breast Edge using Areas Enclosed by Iso-Intensity Contours
Author Padayachee, J., Alport, M.J., Rae, W.I.D.
Reference Computerized Medical Imaging and Graphics
Date 2007
Vol., Page 31, 390-400
5. *Title* ^{99m}Tc-MIBI Imaging of AIDS-Related Kaposi's Sarcoma in the Lungs
Author Peer, F.I., Pui, M.H., Rae, W.I.D., Mosam, A.
Reference Nuclear Medicine Communications
Date 2008
Vol., Page 29 (9) 786-790
6. *Title* Computed radiography exposure indices in mammography
Author Koen, L., Herbst, C.P., Rae, W.I.D.
Reference SA Journal of Radiology
Date 2008
Vol., Page July, 28-31
7. *Title* Reported low back pain amongst nurses at a district hospital: Incidence, profile and risk factors
Author Uebel, K.E., Rae, W.I.D., Joubert, G., Hiemstra, L.A.
Reference Occ. Health SA
Date 2009
Vol., Page 15 (2) 8-15
8. *Title* Mammographic CAD: Correlation of regions in ipsilateral views – a pilot study
Author Padayachee, J., Alport, M.J., Rae, W.I.D.
Reference SA Journal of Radiology
Date 2009
Vol., Page 48-54
9. *Title* Automatic scoring of American College of Radiology (ACR) Phantom image using image processing technique
Author Hamza, A., Alport, M.J., Rae, W.I.D.
Reference Journal of Science and Technology (Sudan)
Date 2009
Vol., Page 10 (2) 140-156

10. *Title* Automatic scoring of the collimation quality control (QC) Phantom using image processing techniques
Author Hamza, A., Alport, M.J., Rae, W.I.D.
Reference Journal of Science and Technology (Sudan)
Date 2009
Vol., Page 10 (2) 157-173
11. *Title* The design and fabrication of a full field quantitative mammographic phantom
Author Hamza, A., Alport, M.J., Rae, W.I.D.
Reference Journal of Science and Technology (Sudan)
Date 2009
Vol., Page 10 (3) 141-158.
12. *Title* Qualitative and quantitative evaluation of the APG Phantom
Author Hamza, A., Alport, M.J., Rae, W.I.D.
Reference Journal of Science and Technology (Sudan)
Date 2009
Vol., Page 10 (3) 168-187
13. *Title* Review and critical evaluation of the current mammography QC Phantoms
Author Hamza, A., Alport, M.J., Rae, W.I.D.
Reference Journal of Science and Technology (Sudan)
Date 2009
Vol., Page 10 (3) 168-187
14. *Title* The relationship between compression force, image quality and radiation dose in mammography
Author Korf, A., Herbst, C.P., Rae, W.I.D.
Reference SA Journal of Radiology
Date 2009
Vol., Page 13 (4), December, 86-92
15. *Title* Evaluation of an uncollimated printed paper transmission source used under scatter limiting conditions
Author van Staden, J.A., du Raan, H., Lötter, M.G., Herbst, C.P., van Aswegen, A., Rae W.I.D.
Reference Physica Medica
Date 2011
Vol., Page 27, 11-20
16. *Title* Evaluation Of Breast Cancer Risk by Using Fuzzy Logic
Author Balanică, V., Dumitrache, I., Caramihai, M., Rae, W.I.D., Herbst, C.P.
Reference Universitatea Politehnica din Bucuresti Scientific Bulletin Series C, ISSN 1454-234x
Date 2011
Vol., Page 73(1), 53-64
17. *Title* New Insights into the Pathogenesis of Cryptococcal Induced Visual Loss using Diffusion-Weighted Imaging of the Optic Nerve
Author Moodley, A., Rae, W.I.D., Bhigjee, A., Loubser, N., Michowicz, A.
Reference Neuro-Ophthalmology
Date 2012
Vol., Page 36(5) 186-192
18. *Title* Image quality dependence on image processing software in computed radiography
Author Strauss, L.J., Rae, W.I.D.
Reference SA Journal of Radiology
Date 2012
Vol., Page 16(2), May, 82-85

19. *Title* Early Clinical and Subclinical Visual Evoked Potential and Humphrey's Visual Field Defects in Cryptococcal Meningitis
Author Moodley, A., Rae, W.I.D., Bhigjee, A., Connolly, C., Devparsad, N., Michowicz, A., Harrison, T., Loyse, A.
Reference PLOS ONE (www.plosone.org)
Date 2012
Vol., Page 7(12), December, e52895
20. *Title* The Optic Nerve Compartment Syndrome in Cryptococcus-Induced Visual Loss
Author Moodley, A., Naidoo, N., Reitz, D., Chetty, N., Rae, W.I.D.
Reference Neuro-Ophthalmology
Date 2013
Vol., Page 37(3), May, 124-128 ISSN: 0165-8107 print / 1744-506X online
21. *Title* Biodistribution (as determined by the radiolabelled equivalent) of a gold(III) bis(pyrrolide-imine) Schiff base complex: a potential chemotherapeutic
Author Akerman, M.P., Munro, O.Q., Mongane, M., van Staden, J.A., Rae, W.I.D., Bester, C.J., Marjanovic-Painter, B., Szucs, Z., Zeevaart, J-R.
Reference Journal of Labelled Compounds and Radiopharmaceuticals
Date 16 July 2013
Vol., Page 56, 530-535
22. *Title* Equivalence of Gyn GEC-ESTRO guidelines for image guided cervical brachytherapy with EUD-based dose prescription.
Author Shaw, W., Rae W.I.D., Alber, M.L.
Reference Radiation Oncology 2013, <http://www.ro-journal.com/content/8/1/266>
Date November 2013
Vol., Page 8:266

UN-REVIEWED PUBLICATIONS IN POPULAR PRESS

- Title* IUPESM WC 2012, Beijing, PRC
Author Rae, W.I.D.
Reference Physics Comment (<http://www.saip.org.za/PhysicsComment>)
Date 2012
Vol., Page 4 (3) 24-26

PUBLICATIONS IN INTERNATIONAL CONFERENCE PROCEEDINGS

1. *Title* The Design and Fabrication of a Full Field Quantitative Mammographic Phantom
Author Hamza, A.O.M., Rae, W.I.D., Alport, M.J.
Event Proceedings: World Congress on Medical Physics and Biomedical Engineering
Date WC2006 Seoul, South Korea 2006; 27 August –1 September
Page

2. *Title* Combined use of the area under the ROC curve and a measure of contrast to evaluate template matching similarity metrics
Author Padayachee, J., Rae, W. I. D., Alport, M. J.
Event Proceedings: World Congress on Medical Physics and Biomedical Engineering
Date WC2006 Seoul, South Korea 2006; 27 August –1 September
Page

3. *Title* Optimization of Exposure Factors and Image Quality for Computed Radiography
Author Khotle, T., de Vos, H., Herbst, C.P., Rae, W.I.D.
Event IFMBE Proceedings: O. Dössel and W.C. Schlegel (Eds.) Springer, WC2009
Date 2009
Page 25/II, 251-254

4. *Title* Evaluation of Two Scatter Correction Techniques for an Uncollimated Transmission Flood Source
Author van Staden, J.A., du Raan, H., Lötter, M.G., Herbst, C.P., van Aswegen, A., Rae, W.I.D.
Event IFMBE Proceedings: O. Dössel and W.C. Schlegel (Eds.) Springer, WC2009
Date 2009
Page 25/II, 780-783

5. *Title* Status of Education and Training in Africa: Focus on South Africa
Author Rae, W.I.D.
Event IFMBE Proceedings: O. Dössel and W.C. Schlegel (Eds.) Springer, WC2009
Date 2009
Page 25/XIII, 25-27

6. *Title* Integration of Image and Patient Data, Software and International Coding Systems for Use in a Mammography Research Project
Author Balanica, V., Rae, W.I.D., Caramihai, M., Acho, S., Herbst, C.P.
Event World Academy of Science, Engineering and Technology, ISSN 2070-3724
Date 2009
Page 58, 1002–1005

7. *Title* Breast Cancer Treatment Quality Evaluation using Computer Aided Diagnostic (CAD) Software
Author Caramihai, M., Balan, H., Severin, I., Rae, W.I.D., Herbst, C.P., Balanica, V.
Event World Academy of Science Engineering and Technology, ISSN 2070-3724
Date 2010
Page 61

8. *Title* Artificial Intelligence Techniques in The Diagnosis of Breast Cancer. A Case Study
Author Caramihai, M., Balan, H., Severin, I., Blidaru, A., Rae, W.I.D., Herbst, C.P., Balanica, V.
Event Med-e-Tel 2010, Luxembourg, Conference Proceedings, ISfTeH; Malina Jordanova and Frank Lievens (Eds) ISSN 1998-5509
Date 14-16 April 2010
Page 3, 336

9. *Title* 4D Biologically Optimized Brachytherapy Treatment Planning of the Cervix
Author Shaw, W., Rae, W.I.D., Alber, M.
Event ESTRO Barcelona, Spain, published in Radiotherapy and Oncology, Supplement 1
Date December 2010
Page 96, S206

- 10.Title* Cerebrospinal Fluid (CSF) Pressure effects on Optic Nerve Diffusion in Patients with Cryptococcal Meningitis (CM)
Author Moodley, A., Rae, W.I.D., Bhigjee, A., Loubser, N., Michowicz, A.
Event 10th EUNOS Meeting, Barcelona, Spain, published in Neuro-Ophthalmology
Date 18-21 June 2011
Page Supplement 1, Vol 35, S17-S18
- 11.Title* A Solution for Brachytherapy Biologically Guided Dose Individualisation in The Treatment of Cervix Cancer
Author Shaw, W., Rae, W.I.D., Alber, M.
Event IFMBE Proceedings: M. Long, (Ed) Springer, World Congress on Medical Physics and Bioengineering 2012.
Date 26-31 May 2012
Page 39, 2276-2279
- 12.Title* Medical Physics Certification in South Africa
Author Rae, W.I.D.
Event IFMBE Proceedings: M. Long, (Ed) Springer, World Congress on Medical Physics and Bioengineering 2012.
Date 26-31 May 2012
Page 39, 2256-2259
- 13.Title* Neurological, Visual, and MRI Brain Scan Findings in 87 South African Patients with HIV Associated Cryptococcal Meningoencephalitis
Author Loyse, A., Moodley, A., Rae, W.I.D., Bhigjee, A., Loubser, N., Michowicz, A.
Event 52nd ICAAC
Date 9-12 September 2012
Page Still awaited

BOOK CONTRIBUTIONS

1. *Title* Chapter 2: Radiation Protection in Radiological Practice
Author Rae, W.I.D.
Book Pattern Recognition in Diagnostic Imaging
Publisher Editor: Corr, P., with World Health Organisation, Geneva
Date 2001

2. *Title* Digital Toolkit for Digital Mammography Quality Control
Author Hamza, A.O.M., Rae, W.I.D., Alport, M.J.
Book ISBN 978-3-8383-2243-8
Publisher LAP LAMBERT Academic Publishing AG & Co. KG.,
Date November 2009

3. *Title* Chapter 30 Medical Physics
Author Rae, W.I.D., Wasserman, H.J.
Book Physics in South Africa ISBN 978-0-620-56602-5
Publisher Editors: de Kock, P.R., Moraal, H. Commissioned by SAIP
Date July 2013

SUPERVISED OR CO-SUPERVISED PhD STUDENTS (AWARDED)

1. *Student* Jayanethie Padayachee
Supervisor William Rae
Co-Supervisor none
Thesis Computer Aided Diagnosis in Mammography: Correlation of Regions in Multiple Standard Mammographic Views of the Same Breast
University School of Physics, University of KwaZulu-Natal
Date 2006

2. *Student* Alnazier Osman Mohammed Hamza
Supervisor Michael Alport
Co-Supervisor William Rae
Thesis Automatic Analysis Of Images Obtained From QC Measurements Of Mammography X-Ray Units And The Design Of An Improved QC Phantom For Mammography
University School of Physics, University of KwaZulu-Natal
Date 2006

3. *Student* Mohamed Gar-Elnabi
Supervisor Michael Alport
Co-Supervisor William Rae
Thesis Characterization of Hamartoma and Normal Breast Tissues using Textures Analysis
University School of Physics, University of KwaZulu-Natal
Date 2007

4. *Student* Fawzia Ismail Peer
Supervisor Margaret Pui (Radiologist, Canada)
Co-Supervisor William Rae, Nirusha Lachman
Thesis An Evaluation of ^{99m}Tc -MIBI Imaging of Kaposi's Sarcoma in AIDS Patients
University Faculty of Health Sciences, Durban University of Technology
Date 2006

5. *Student* Carin Meyer
Supervisor William Rae
Co-Supervisor Charles Herbst
Thesis Development and evaluation of a soft-copy mammographic viewing protocol to improve radiologic reporting
University Faculty of Health Sciences, University of the Free State
Date 2013

6. *Student* Anand Moodley
Supervisor Ahmed Bhigjee
Co-Supervisor William Rae
Thesis A Qualitative and Quantitative MR diffusion study Investigating the Pathogenesis of Cryptococcal Induced Visual Loss
University Faculty of Medicine, University of KwaZulu-Natal
Date 2013

SUPERVISOR OR CO-SUPERVISOR FOR PhD STUDENTS (IN PROGRESS)

1. *Student* Yarish Brijmohan
Supervisor Stanley Mnyeni
Co-Supervisor William Rae
Thesis 3D Modelling, Segmentation, Quantification and Visualization of Cardiovascular Magnetic Resonance Images
University Faculty of Electronic Engineering, University of KwaZulu-Natal
Date 1st registered 2008

2. *Student* Pieter du Toit
Supervisor Hanlie du Raan
Co-Supervisor William Rae, Dimitris Visvicis (Physicist, France)
Thesis Monte Carlo Simulations of Factors affecting Accuracy of Standardised Uptake Values in Positron Emission Tomography
University Faculty of Health Sciences, University of the Free State
Date 1st registered 2008

3. *Student* William Shaw
Supervisor William Rae
Co-Supervisor Marcus Alber (Physicist, Germany)
Thesis An Equivalent Uniform Dose Based Class Solution for Radiotherapy Treatment of Cervical Cancer
University Faculty of Health Sciences, University of the Free State
Date 1st registered 2009

4. *Student* Sussan Acho
Supervisor William Rae
Co-Supervisor none
Thesis Quantitative analysis of mammographic masses using image analysis
University Faculty of Health Sciences, University of the Free State
Date 1st registered 2010

NATIONAL AND OTHER CONGRESS PRESENTATIONS

1. Rae, W. I. D., Shackleton, D., "Dose Distributions around I-125 Seeds (Model 6702 and Model 6711)," 27th Annual Congress SAAPMB, Bloemfontein, 1987.
2. Rae, W. I. D., Shackleton, D., "Computerised Optimisation of Positions of I-125 Sources in Brachytherapy Planning," 27th Annual Congress SAAPMB, Bloemfontein, 1987.
3. Rae, W. I. D., Shackleton, M. O., Boniaszczuk, J., "SPECT Quality Control Phantom: Data Analysis," 28th Annual Congress SAAPMB, Cape Town, 1988.
4. Carswell, S. P., Rae W. I. D., "Whole Body Dose Estimates to Staff Involved in Gynaecological Radium Insertions," 31st Annual Congress SAAPMB, Cape Town, 1991.
5. Rae, W. I. D., "Thermoluminescent Dosimetry During Screening of Rando Pelvis," 31st Annual Congress SAAPMB, Cape Town, 1991.
6. Rae, W. I. D., "Brief Report of Cobalt-60 Radiation Incident," 31st Annual Congress SAAPMB, Cape Town, 1991.
7. Rae, W. I. D., "Quality Control Record of Life of γ -Counter's NaI(Tl) Crystal," 32nd Annual Congress SAAPMB, Johannesburg, 1992.
8. Dreyer, A., Rae, W. I. D., Musson, J., "Long Source-Skin Distance Techniques using a Theratron 780-C Cobalt Therapy unit designed for Isocentric Treatments," 15th National Radiotherapy Congress Sept., 1993.
9. Rae, W. I. D., Willemse, C. A., "Monte Carlo Simulation of an 8MV Photon Beam including Electron Contamination," 33rd Annual Congress SAAPMB, Pretoria, 1994.
10. Rae, W. I. D., Willemse, C. A., Lötter, M. G., "Ferrous Sulphate Based Gel MRI Dosimeter System for the Determination of Three Dimensional Absorbed Radiation Dose Distributions," 33rd Annual Congress SAAPMB, Pretoria, 1994.
11. Rae, W. I. D., Willemse, C. A., Lötter, M. G., Engelbrecht, J. S., "Ion diffusion coefficients in Ferrous Sulphate doped gelatine gel dosimeters," 34th Annual Congress SAAPMB, Cape Town, 1995.
12. Rae, W. I. D., Willemse, C. A., Lötter, M. G., Engelbrecht, J. S., "Ion diffusion coefficient measurements in Ferrous Sulphate doped gelatine gel dosimeters," Annual Joint Congress of Australasian College of Physical Scientists and Engineers in Medicine and College of Biomedical Engineers, Queenstown, N.Z., 1995.
13. Rae, W. I. D., Willemse, C. A., "Monte Carlo Simulation of an 8MV Photon Beam including Electron Contamination," Title. Proceedings: AAPM annual meeting, Boston, Med. Phys. 22 (6) 907 1995.
14. Rae, W. I. D., Willemse, C. A., Lötter, M. G., Engelbrecht, J. S., "Comparison of Dose Distributions Obtained for a Simplified Model of the External Ear using Three Independent Dosimetry Methods," 35th Annual Congress SAAPMB, Pretoria, 1996.
15. Rae, W. I. D., Rana, M. D., Nadvi, S. S., Corr, P. D., "Relative Diffusion in the Brain as Measured Using MRI," 37th Annual Congress SAAPMB, Kruger National Park, 1998.
16. Rae, W. I. D., "I am a Medical Physicist," 37th Annual Congress SAAPMB, Kruger National Park, 1998.
17. Rae, W. I. D., Mahomed, Z., Ghoorun, S., "Left Ventricular Ejection Fraction Normal Values," 37th Annual Congress SAAPMB, Kruger National Park, 1998.
18. Ghoorun, S., Rae, W. I. D., "Normalisation of Glomerular Filtration Rate in Adults and Children: Body Surface Area or Extracellular Fluid?" 37th Annual Congress SAAPMB, Kruger National Park, 1998.
19. Rana, M. D., Rae, W. I. D., "Quality Control for Diffusion Imaging in MRI," 37th Annual Congress SAAPMB, Kruger National Park, 1998.
20. Rana, M. D., Rae, W. I. D., Corr, P., Moodley, J., Kershah, J., "A Prospective Study in Eclampsia Using Diffusion Weighted Imaging," 40th Annual Congress SAAPMB, Durban, June 2000.
21. Rana, M. D., Rae, W. I. D., Corr, P., Nadvi, S. S., "Prognostic value of Diffusion Weighted Imaging in Tuberculous Meningitis (TBM)," 40th Annual Congress SAAPMB, Durban, June 2000.
22. Rae, W. I. D., Rana, M. D., "A Quality Control Program for an MRI used for Quantitative Diffusion Measurements," 40th Annual Congress SAAPMB, Durban, June 2000.
23. Rae, W. I. D., "New regulations for ionising radiations in UK and Europe," 41st Annual Congress SAAPMB, Bloemfontein, June 2001.
24. Rae, W. I. D., Desai, D. K., "Influence of Ischaemia and Infarction on LV Ejection Fraction during Stress and Rest Cardiac Perfusion Imaging," 42nd Annual Congress SAAPMB, Pretoria, July 2002.
25. Padayachee, J., Rae, W. I. D., Gar-Elnabi, M., Alport, M. J., "Overview of Neural Network and Texture Based Techniques for Computer Aided Diagnosis in Mammography," 42nd Annual Congress SAAPMB, Pretoria, July 2002.
26. Pui, M. H., Mitha, A., Rae, W. I. D., Corr, P., "Diffusion-Weighted MR Imaging of Spinal Infection and Malignancy," 88th Annual Meeting of RSNA, Chicago, USA, Dec 2002.
27. Padayachee J., Alport, M.J., Rae, W.I.D., "Computer-Aided Diagnosis in Mammography-Segmenting The Breast Border," 43rd Annual Congress SAAPMB, Somerset West, June 2003.
28. Padayachee J., Alport, M.J., Rae, W.I.D., "Computer-Aided Diagnosis in Mammography-Segmenting The Breast Border," 1st Annual Post Graduate Research Day, 2003, University of KwaZulu-Natal, Durban, 9 August 2003.
29. Hamza, A.O.M., Alport, M.J., Rae W.I.D., "Quality Control of Mammographic Images: Automated Detection of Masses in Phantom Images," 43rd Annual Congress SAAPMB, Somerset West, June 2003.
30. Jar-el-nabi, M., Alport, M.J., Rae, W.I.D., "Statistical Characterization of Breast Tissues in Mammograms," 43rd Annual Congress SAAAPMB, Somerset West, June 2003.

31. Rae, W.I.D., Jar-elnabi, M., Alport, M.J., "Tissue Type Classification In Mammograms Of Hamartomas Using Statistical Clustering And Wavelet Coefficients," World Congress on Medical Physics and Biomedical Engineering, Sydney, Australia, August 24-29, 2003.
32. Shein, U.K., Rae W.I.D., Maharaj, S.U., Naidoo, D.P., "Assessment Of The Accuracy Of Stress/Rest Myocardial Perfusion Studies In Patients With Bundle Branch Blocks," Annual Congress of SA Cardiology Society, Durban, 2003.
33. Hamza, A.O.M., M.J.Alport, M.J., Rae, W.I.D., "Quality Control of Mammographic Images: Automated Analysis of Collimation Test Images," 44th Annual Congress SAAPMB, Johannesburg, September 2004.
34. Gar-elnabi, M., Alport, M.J., Rae, W.I.D., "Texture Characterization of Mammography Images of Hamartomas," 44th Annual Congress SAAPMB, Johannesburg, September 2004.
35. Gar-elnabi, M., Alport, M.J., Rae, W.I.D., "Breast Tissue Classification Using Relative Diagonal Populations of a Spatial Grey Level Dependent Co-occurrence Matrix," 45th Annual Congress SAAPMB, Bellville, Cape, March 2006.
36. Rae, W.I.D., Rana, M. D. "X-Ray shadow Artefact," 45th Annual Congress SAAPMB, Bellville, Cape, March 2006.
37. Peer, F.I., Pui, M.H., Rae, W.I.D., Mosam, A., Lachman, N. "^{99m}Tc-MIBI Imaging to differentiate pulmonary Malignancy from infection in AIDS-Associated Kaposi's Sarcoma," Society of Nuclear Medicine Congress, San Diego, June 2006.
38. Hamza, A.O.M., Rae, W.I.D., M.J.Alport, M.J., "The Design and Fabrication of a Full Field Quantitative Mammographic Phantom," World Congress on Medical Physics and Biomedical Engineering, WC2006 Seoul, South Korea, 27 August –1 September 2006.
39. Padayachee, J., Rae, W. I. D., Alport, M. J., "Combined use of the area under the ROC curve and a measure of contrast to evaluate template matching similarity metrics," World Congress on Medical Physics and Biomedical Engineering, WC2006 Seoul, South Korea, 27 August –1 September 2006.
40. Shein, U.K., Naidoo, D.P., Rae W.I.D., "Assessment Of The Accuracy Of Stress/Rest Myocardial Perfusion Studies In Patients With Bundle Branch Block," College of Health Sciences Research Symposium, 12-13 September 2006.
41. Mpikashe, P., Sathekge, M.M., Maes, A., Rae, W.I.D., "^{99m}Tc Disofenin Cholescintigraphy with γ -Glutamyl Transpeptidase and Birth Weight in the Differentiation of Biliary Atresia from Neonatal Hepatitis," Twelfth Congress of the South African Society of Nuclear Medicine, Port Elizabeth, September 2006.
42. van Wyk, B., Leboea, H., Rae, W.I.D., "PET-CT Shielding Design," Annual Congress SAAPMB, Pretoria, 2007.
43. Malan, H., Willemse, L., Rae, W.I.D., Herbst, C.P., "Audit of Staff and Patient Doses in a General Vascular Laboratory," Annual Congress SAAPMB, Pretoria, 2007.
44. Rae, W.I.D., "WC2006 IOMP World Congress Report," Annual Congress SAAPMB, Pretoria, 2007.
45. Sweetlove, A., Rae, W.I.D., "Mammography Dose and Image Quality-The SA Scenario," Annual Congress SAAPMB, Pretoria, 2007.
46. van Wyk, W.P., Rae, W.I.D., Cloot, A.H.J., "Fractional Order Calculus In Medical Image Analysis", Annual Congress SAAPMB, Durban, 2008.
47. Koen, L., Rae, W.I.D., Herbst, C.P., "Computed Radiography Exposure Indices in Mammography" Annual Congress SAAPMB, Durban, 2008.
48. van Staden, J., du Raan, H., Lötter, M.G., van Aswegen, A., Herbst, C.P., Rae, W.I.D., "The Evaluation of an Uncollimated Transmission Flood Source System for the use of Transmission Imaging", Annual Congress SAAPMB, Durban, 2008.
49. Jonas, V., Smit, J., Acho, S., Rae, W.I.D., "Mammography Quality Control: Film Screen versus Digital Systems," Annual Congress SAAPMB, Durban, 2008.
50. de Vos, H., Khotle, T., Herbst, C.P., Rae, W.I.D., "Optimisation of Exposure Factors and Image Quality for a Computed Radiography System", Annual Congress SAAPMB, Bloemfontein, 2009.
51. Meyer, C., Rae, W.I.D., Herbst, C.P., "Optimisation of Display of Mammography Quality Control Phantom Digital Images", Annual Congress SAAPMB, Bloemfontein, March 2009.
52. Willemse, N., Rae, W.I.D., Herbst, C.P., "Inter-observer Variation in Manual Contouring of Ventricular Function Calculation Using Cardiac Magnetic Resonance Imaging", Annual Congress SAAPMB, Bloemfontein, March 2009.
53. Acho, S., Rae, W.I.D., "A combined Method for Breast Mass Delineation in Mammography", Annual Congress SAAPMB, Bloemfontein, March 2009.
54. Acho, S., Rae, W.I.D., Herbst, C.P., "Variational Level Set Method in Region-Based Segmentation: Ventricle Segmentation from Magnetic Resonance Imaging", Annual Congress SAAPMB, Bloemfontein, March 2009.
55. Fajurally, N.B., Walters, A.M., Rae, W.I.D., "Quality Assurance of Computer Tomography Scanners in Bloemfontein State Hospitals", Annual Congress SAAPMB, Bloemfontein, March 2009.
56. Khotle, T., Rae, W.I.D., "Quality Assurance of the 1.5T MRI Scanner at Universitas Hospital using an MRI Test Phantom Recommended by the American College of Radiology", Annual Congress SAAPMB, Bloemfontein, March 2009.
57. van Staden, J.A., du Raan, H., Lötter, M.G., Herbst, C.P., Rae, W.I.D., Otto, A.C., "Evaluation of Two Scatter Correction Techniques for an Uncollimated Transmission Flood Source", Annual Congress SAAPMB, Bloemfontein, March 2009.
58. Walters, A.M., Herbst, C.P., Rae, W.I.D., "Methods of Reduction of CT Radiation Exposure", Annual Congress SAAPMB, Bloemfontein, March 2009.
59. O'Reilly, F.H.J., Willemse, C.A., Rae, W.I.D., Herbst, C.P., du Plessis, F.C.P. "Evaluation of an Existing Portal Imaging Device for Fan Beam Reconstruction", Annual Congress SAAPMB, Bloemfontein, March 2009.
60. de Vos, H.J., Herbst, C.P., Rae, W.I.D., "Acceptance Testing of PACS Display Systems at Universitas Hospital Using

- the AAPM TG 18 Report”, Annual Congress SAAPMB, Bloemfontein, March 2009.
61. Korf, A., Herbst, C.P., Rae, W.I.D., “The relationship between compression force, image quality and radiation dose in mammography,” SAAPMB 2010 Congress, 15-17 Sept 2010.
 62. Erasmus, A., Korf, A., Herbst, C.P., Rae, W.I.D., “Characterisation of CR plates for background Radiation Monitoring,” SAAPMB 2010 Congress, 15-17 Sept 2010.
 63. Willemse, N., Rae, W.I.D., Herbst, C.P., “Quantification of Normal Right and Left Ventricular Function Using Manual Contouring on Cardiac MRI,” SAAPMB 2010 Congress, 15-17 Sept 2010.
 64. O’Reilly, F.H.J., Willemse, C.A., Rae, W.I.D., du Plessis, F.C.P., “Geometric Calibration for Cone-Beam Computed Tomography Systems and its influence on Image Quality,” SAAPMB 2010 Congress, 15-17 Sept 2010.
 65. Meyer, C., Herbst, C.P., Joubert, G., Rae, W.I.D., “Assessment of Basic Soft-copy Reporting Training on Diagnostic Accuracy of Mammography Reporting,” 16th ISRRT World Congress Gold Coast, Australia, 9-12 September 2010.
 66. Meyer, C., Herbst, C.P., Joubert, G., Rae, W.I.D., “Image Quality Assessment of Image Processing Algorithms for Clinical Soft-copy Mammography Display,” 16th ISRRT World Congress Gold Coast, Australia, 9-12 September 2010.
 67. Meyer, C., Herbst, C.P., Rae, W.I.D., “Optimisation of Soft-copy Display using Mammography Quality Control Phantom Images,” 16th ISRRT World Congress Gold Coast, Australia, 9-12 September 2010.
 68. Meyer, C., Herbst, C.P., Joubert, G., Rae, W.I.D., “Assessment of Basic Soft-copy Reporting Training on Diagnostic Accuracy of Mammography Reporting,” SORSA/RSSA 2011 Imaging Congress, Durban, 4 – 6 March 2011.
 69. Meyer, C., Herbst, C.P., Joubert, G., Rae, W.I.D., “Image Quality Assessment of Image Processing Algorithms for Clinical Soft-copy Mammography Display,” SORSA/RSSA 2011 Imaging Congress, Durban, 4 – 6 March 2011.
 70. Meyer, C., Herbst, C.P., Rae, W.I.D., “Optimisation of Soft-copy Display using Mammography Quality Control Phantom Images,” SORSA/RSSA 2011 Imaging Congress, Durban, 4 – 6 March 2011.
 71. Barcan, A.J., Lacea, A., Beda, B., Caramihai, M., Balanica, V., Rae, W.I.D., Herbst, C.P., Strauss, L., “Segmentation and Analysis Algorithms for Breast Mass Quantification”, SORSA/RSSA 2011 Imaging Congress, Durban, 4 – 6 March 2011.
 72. Moodley, A.A., Bhigjee, I.A., Rae, W.I.D., Michowicz, A., Govender, L., Loubser, N., Loyse, A., “Cerebrospinal Fluid (CSF) pressure effects on Optic Nerve diffusion demonstrated by Diffusion Weighted Image (DWI) and Diffusion Tensor Image (DTI) of the Optic nerve (ON) in patients with cryptococcal meningitis (CM)”, Annual Congress of the Neurological Association of South Africa 2011, Durban, 9-12 March 2011.
 73. Acho, S.N.N., Rae, W.I.D., “Image Multilevel Thresholding Inspired by Particle Swarm Optimization (Like Bees)”, SAAPMB 2011 Congress, Centurion, 19-21 September 2011.
 74. Herbst, C.P., Rae, W.I.D., Erasmus, A., “Attitudes and Performance of Radiology Registrars in a Short Course, Physics of Medical Imaging”, SAAPMB 2011 Congress, Centurion, 19-21 September 2011.
 75. Burger, N., Rae, W.I.D., Herbst, C.P., “Resolution Depth Dependence in Digital Breast Tomosynthesis”, SAAPMB 2011 Congress, Centurion, 19-21 September 2011.
 76. Shaw, W., Rae, W.I.D., Alber, M., “A Worst Case Scenario Approach for Treatment Planning Optimization”, SAAPMB 2011 Congress, Centurion, 19-21 September 2011.
 77. Stofile, C.L.K., Burger, N., Erasmus, A., Rae, W.I.D., “Digital Mammography Target/Filter Combinations: Effects on Image Quality and Dose”, SAAPMB 2011 Congress, Centurion, 19-21 September 2011.
 78. Sepitla, T.A., van Staden, J., du Raan, H., Rae, W.I.D., Boom, K. “Gamma Camera Sensitivity and Collimator Penetration Fraction using Standard NEMA Tests and Printed Sources”, SAAPMB 2011 Congress, Centurion, 19-21 September 2011.
 79. Rae, W.I.D. “Medical Physics Continuing Professional Development in South Africa: What have we achieved?” WC2012, Beijing, PRC, 26-31 May 2012.
 80. Shaw, W., Rae, W.I.D., Alber, M., “Individualised Biologically Guided Brachytherapy Treatment of Cervix Cancer”, SAAPMB 2012 Congress, Port Elizabeth, 17-21 September 2012.
 81. Shaw, W., Rae, W.I.D., Alber, M., “Determination of Safe Optimisation Margins for Cervix IMRT”, SAAPMB 2012 Congress, Port Elizabeth, 17-21 September 2012.
 82. Rae, W.I.D., “Perspectives on Medical Physics Education and Training in South Africa”, SAAPMB 2012 Congress, Port Elizabeth, 17-21 September 2012.
 83. Rae, W.I.D., “Feedback from IOMP WC2012, Beijing, China”, SAAPMB 2012 Congress, Port Elizabeth, 17-21 September 2012.
 84. Willemse, N., Rae, W.I.D., Herbst, C.P., “Final Remarks on Manual Quantification for Right Ventricular Function Using Cardiac MRI: Optimisation of the Method”, SAAPMB 2012 Congress, Port Elizabeth, 17-21 September 2012.
 85. Sepitla, T.A., Rae, W.I.D., “Accuracy of Apparent Diffusion Coefficient (ADC) Measurement using Temperature Controlled Distilled Ice-Water Phantom”, SAAPMB 2012 Congress, Port Elizabeth, 17-21 September 2012.
 86. Jonson, B., Rae, W.I.D., “Digital Breast Tomosynthesis: Image Quality Phantom for Verifying Image Reconstruction Positions”, SAAPMB 2012 Congress, Port Elizabeth, 17-21 September 2012.
 87. Moodley, A.A., Naidoo, N., Reitz, D., Chetty, N., Rae, W.I.D., “The Optic Nerve Compartment Syndrome in Cryptococcal Induced Visual Loss”, Neurological Association of SA Congress, Stellenbosch, 11-17 March 2013.
 88. Rae, W.I.D., “Medical Physics in South Africa: A History and Status Report”, ICMP 2013, Brighton UK, Medical Physics International Journal, 1(2) 207.
 89. Ghoorun, S., Groenewald, W.A., Slabbert, J.P., Rae, W.I.D., “Nuclear Emergency Management Systems in South Africa”, ICMP 2013, Brighton UK, Medical Physics International Journal, 1(2) 360.
 90. Rae, W.I.D., Jonson, B., “Slice Depth and Resolution Phantom for Digital Breast Tomosynthesis”, ICMP 2013,

Brighton UK, Medical Physics International Journal, 1(2) 375.

91. Rae, W.I.D., Stofile, C., Muller, Y., "Dose and Image Quality Optimisation for Planar and Tomosynthesis imaging in Digital Mammography", ICMP 2013, Brighton UK, Medical Physics International Journal, 1(2) 586.
92. Rae, W.I.D., Herbst, C.P., "Undergraduate Medical Physics Education in South Africa", ICMP 2013, Brighton UK, Medical Physics International Journal, 1(2) 727.

FACULTY FORUM PRESENTATIONS

1. Rae, W. I. D., Willemse, C. A., Lötter, M. G., Engelbrecht, J. S., "Evaluation of the Accuracy of Radiotherapy Planning System Dose Distributions using Ferrous Sulphate Doped Gel Dosimetry and Monte Carlo Simulation," Fakulteitsforum, Fakulteit Geneeskunde, UOVFS. 1994.
2. van Wyk, W.P., Rae, W.I.D., Cloot, A.H.J. "Fractional Order Calculus In Medical Image Analysis", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2008.
3. Jonas, V., Smit, J., Acho, S., Rae, W.I.D., "Mammography Quality Control: Film Screen versus Digital Systems," Faculty Forum, University of the Free State, Bloemfontein, 28 August 2008.
4. Koen, L., Rae, W.I.D., Herbst, C.P., "Computed Radiography Exposure Indices in Mammography" Faculty Forum, University of the Free State, Bloemfontein, 28 August 2008.
5. Willemse, N., Rae, W.I.D., Herbst, C.P., "Quantification of Normal Right and Left Ventricular Function, as Evaluated Using Cardiac Magnetic Resonance Imaging", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2008.
6. O'Reilly F.H.J., Willemse, C.A., Rae, W.I.D., Herbst, C.P., du Plessis, F.C.P., "The Use of a Radiotherapy Portal Imaging Device for Patient Setup Verification through Parallel and Fan Beam Reconstruction", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
7. de Vos, H.J., Herbst, C.P., Rae, W.I.D., "Acceptance Testing of PACS Display Systems at Universitas Hospital using the AAPM TG18 Reports", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
8. Walters, A.M., Herbst, C.P., Rae, W.I.D., "Methods of Reduction of CT Radiation Exposure", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
9. Acho, S.N., Rae, W.I.D., "A Combined Method for Breast Mass Segmentation and Boundary Delineation in Mammographic Imaging", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
10. Korf, A., Herbst, C.P., Rae, W.I.D., "The relationship between Compression Force, Image Quality and Radiation Dose in Mammography", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
11. Khotle, T., Rae, W.I.D., "Quality Assurance of the 1.5T MRI scanner at Universitas Hospital Using an MRI Test Phantom Recommended by the American College of Radiology", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
12. Acho, S.N., Rae, W.I.D., "Variational Level Set Method in Region Based Segmentation Ventricle Segmentation from Magnetic Resonance Imaging", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
13. van Staden, J.A., du Raan, H., Lötter, M.G., Herbst, C.P., van Aswegen, A., Rae, W.I.D., "Evaluation of Two Scatter Correction Techniques for an Uncollimated Transmission Flood Source", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
14. Herbst, C.P., Rae, W.I.D., Beyleveld, A.A., "Physics: Attitude and Performance of Medical Students", Faculty Forum, University of the Free State, Bloemfontein, 28 August 2009.
15. Meyer, C., Rae, W.I.D., C., Herbst, C.P., Joubert, G., "Image Quality Assessment of Image Processing Algorithms for Clinical Soft-Copy Mammographic Display", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
16. O'Reilly F.H.J., Willemse, C.A., Rae, W.I.D., du Plessis, F.C.P., "Calibration of an electronic Portal Imaging Device to Acquire Optimal Images for Patient Positioning in Radiotherapy", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
17. Shaw, W., Rae, W.I.D., Alber, M., "Evaluation of the Effectivity of Radiotherapy Setup Correction", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
18. Willemse, N., Rae, W.I.D., Herbst, C.P., Joubert, G., "Accuracy and Validity of a Manual Contouring Method for Quantification of Normal Right and Left Ventricular Function on Cardiac MRI", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
19. Shaw, W., Rae, W.I.D., Alber, M., "4D Biologically Optimized Brachytherapy Treatment Planning of the Uterus", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
20. Meyer, C., Rae, W.I.D., C., Herbst, C.P., Joubert, G., "Assessment of Basic Soft-Copy Reporting Training on Diagnostic Accuracy of Mammographic Reporting", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
21. Meyer, C., Rae, W.I.D., C., Herbst, C.P., Joubert, G., "Optimisation of Soft-Copy Display using Mammography Quality Control Phantom Images", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
22. Balanica, V., Dumitrache, I., Caramihai, M., Rae, W.I.D., Herbst, C.P., "Evaluation of Breast Cancer Risk by Using Fuzzy Logic on Database Information", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
23. Barcan, A.J., Lacea, A., Beda, B., Caramihai, M., Balanica, V., Rae, W.I.D., Herbst, C.P., "Segmentation and Analysis Algorithms for Breast Mass Quantification", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
24. Erasmus, A., Korf, A., Herbst, C.P., Rae, W.I.D., "Characterisation of CR Plates for Background Radiation Monitoring", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2010.
25. Acho, S.N., Rae, W.I.D., "Image multilevel thresholding inspired by particle swarm optimization (Like Bee)", Faculty Forum, University of the Free State, Bloemfontein, 26 August 2011.
26. Erasmus, A., Herbst, C.P., Rae, W.I.D., "Attitude and performance of Radiology registrars in a short course, Physics of

- medical imaging”, Faculty Forum, University of the Free State, Bloemfontein, 26 August 2011
27. Burger, N.W., Rae, W.I.D., Herbst, C.P., “Resolution depth dependence in digital breast tomosynthesis”, Faculty Forum, University of the Free State, Bloemfontein, 26 August 2011.
 28. Stofile, C.L.K., Rae, W.I.D., Erasmus, A., “Digital Mammography Target/Filter Combinations: Effect on Image Quality and Dose”, Faculty Forum, University of the Free State, Bloemfontein, 26 August 2011.
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